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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/529,188

03/24/2005

Toshiki Maruyama

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4424

23474 7590 03/21/2007
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EXAMINER

RAGIN, RASHEED J

ART UNIT

PAPER NUMBER

2809

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/529,188

Applicant(s)

MARUYAMA ET AL.

Examiner

Rasheed J. Ragin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 24 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/03)
Paper No(s)/Mail Date 3/24/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Preliminary Amendment

Receipt is acknowledged of preliminary amendment filed 3/24/05

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Regarding claims 2 and 5, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horski et al. (U.S. Patent 5,614,775, dated 3/25/1997) and further in view of Willcox (U.S. Patent 3,469,124, dated 9/23/1969).
5. Regarding claim 1, Horski et al. disclose a flat, hollow, brushless motor that comprises of a flatten tubular motor housing, see figure 2, that is sealed at both ends. Horski et al. also discloses in figure 2, where holes are formed in a center of the first and second end plate portions on both sides of the motor housing. Also shown in figure 2, is a rotor shaft [44], of which a portion of both ends is exposed from the first and second housing through holes. Horski et al also discloses a first and second workpiece

insertion recesses formed in the external surfaces, as shown in figure 3, of the first and second end plate portions of the motor housing.

Horski et al., however regarding claim 1, does not disclose a tool mounting hole that extends through the center of the rotor shaft.

Willcox teaches of a device, in figure 1, with a hole in the shaft [26] that is able to receive an output shaft.

Since Horski et al. teach of a flat, brushless motor with a sealed housing and a rotor shaft and Willcox teaches of a motor with a mounting hole located in the shaft, it would have been obvious to one skilled in the art at the time the invention was made to have combined Willcox's device with Horski's et al's device. The motivation to combine Willcox's device with Horski's et al.'s device is that the hollowed rotor shaft would allow for mounting of an output shaft or devices. That allows for external devices to be connected to the motor.

6. Regarding claim 2, Horski et al. and Willcox teach to the limitations of claim 1 for the reason above.

Horski et al does not disclose a tool-mounting hole that has a polygonal cross section.

Willcox discloses a hole in the shaft [26] is a square hole, which is a polygonal cross section.

Since Horski et al. teach of a flat, brushless motor with a sealed housing and a rotor shaft and Willcox teaches of a motor with a mounting hole which is a polygonal cross section located in the shaft, it would have been obvious to one skilled in the art at

the time the invention was made to have combined Willcox's device with Horski's et al's device. The motivation to combine Willcox's device with Horski's et al.'s device is that the hollowed polygonal rotor shaft would allow for mounting of a polygonal output shaft. This allows for more tools with polygonal shafts to be mounted to the motor.

7. Claim 3 and 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Horski et al '775 and Willcox '124 as applied to claim 1 above, and further in view of Kuyama et al (U.S. Patent 6,417,589 B1, dated 7/9/2002).

Regarding claim 3, Horski et al and Willcox teaches the limitations of claim 1 for the reason above.

Horski et al and Willcox differ from the claimed invention in that they do not show that the maximum length in an axial direction of the rotor shaft is equal or less than the thickness between the bottom faces of the first and second workpiece insertion recesses in the first and second end plate portions on both sides of the motor housing.

Kuyama et al teach of a rotor shaft [11], in figure 1, which at maximum length, is less than the thickness between the bottom faces of the first and second workpiece insertion recesses in the first and second end plate portions on both sides of the motor housing.

Since Horski et al. and Willcox teach of a flat, hollow brushless motor with a housing sealed at both ends, and a hole mounting shaft, it would have been obvious to one of ordinary skill in art at the time the invention was made to install a rotor shaft where the maximum length is less than the thickness between the bottom faces of the first and second workpiece as taught by Kuyama. The motivation for this modification is

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that it allows an attachment to the polygonal hole to sit flush with the housing. This allows for a more stable connection with the motor.

8. Regarding claim 4, Horski et al, Willcox and Kuyama teach to the limitations of claim 1 above.

Horski, as modified by Willcox and Kuyama, fail to teach the lead wires disposed along a recess groove formed on an inside surface of the first or second end plate portion of the motor housing which are brought out to the lead wire laying area.

However, Willcox also teaches of a device, in figure 1 and 2, where the leads [42] are extended outside in a radial direction from the external surface of the housing. The leads are extended through the recessed groove, or the slot [40], from the inside to the outside of the motor housing. Therefore, it would have been obvious to one skilled in the art at the time the invention was made combine Willcox's device to the combination of the preceding device. The motivation for the combination is that the leads are easily accessible. This allows for other devices to be connected to motor with less hassle.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horski et al '775 and Willcox '124 as applied to claim 1 above, and further in view of Shimada et al (U.S. Patent 5,319,271, dated 7/07/1994).

Regarding claim 5, Horski et al and Willcox teaches the limitations of claim 1 for the reason above.

Horski et al and Willcox differ from the claimed invention in that they do not specify if their device comprises of a detection mechanism for detecting motor magnetic pole positions where the detection mechanism comprises an FG magnet disposed on

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one side end of the rotor shaft, and a magnetic sensor disposed in an internal surface of the first or second end plate portion facing the FG magnet on the motor housing.

Shimada teaches of a device, in figure 1, with a magnetic sensor [13], which is facing the FG magnet [11]. The magnetic sensor detects a magnetic flux and that flux is shaped through circuit, so that a pulse signal is generated every rotation, thereby giving off magnetic pole positions.

Since Horski et al. and Willcox teach of a flat, hollow brushless motor with a housing sealed at both ends, and a hole mounting shaft, it would have been obvious to one of ordinary skill in art at the time the invention was made to install a magnetic sensor and an FG magnet in the motor housing as taught by Shimada. The motivation for the modification is the magnetic sensor and the FG magnet help monitor the rotation of the rotor shaft. That allows the motor to function properly.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rasheed J. Ragin whose telephone number is (571) 270-1612. The examiner can normally be reached on Monday-Friday, 7:30 - 5, alt Friday EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Loke can be reached on (571) 272-1809. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

3/5/07

RJR



LISA CAPUTO
PRIMARY PATENT EXAMINER